TITLE OF THE INVENTION

COMMODITY SALES SYSTEM, USED ARTICLE QUOTATION SYSTEM, AND CORRESPONDING METHODS

5   **BACKGROUND OF THE INVENTION**

1. Field of the Invention

The present invention relates to a commodity sales system that is connected with a user computer in a communicable manner and is used when a user purchases a commodity, and a corresponding

10   commodity sales method, as well as a used article quotation system that provides a user computer with a quote for acceptance of a used article from a user, and a corresponding used article quotation method.

2. Description of the Prior Art

15   Several systems have been proposed to provide a user with a quote for acceptance of a used article from a user. For example, Dell PC Trade-Up Service (online service by Dell Computer Corporation [retrieved on Sep. 1, 2002], Internet <URL: http://www.dell.com/jp/jp/dhs/topics/nnsegtopic_kaitori.htm>

20   ) gives computer trade-in service subjected to users who intend to purchase new products. When the user enters information regarding the specification of a used computer owned by the user, such as the specifications of the CPU, the memory, and the HDD,

on an information input window and gives a quotation request, the server computer provides the user with a trade-in quote of the used computer.

The computer trade-in service 'Dell PC Trade-Up Service', the system is not designed to allow for information exchange between a shopping site where the user newly purchases commodities and a trade-in site where a used article is taken as a trade-in. The user should thus carry out the procedure of paying the purchase price of each commodity separately from the procedure of receiving the trade-in price of the used article. Namely the prior art computer trade-in service system s not sufficiently user friendly. The user with little computer-related knowledge has difficulties in entering information on the specifications of the used computer, for example, the specifications of the CPU, the memory, and the HDD included in the used computer.

SUMMARY OF THE INVENTION

The object of the invention is thus to provide a user friendly commodity sales system that takes used articles as a trade-in simultaneously with selling commodities selected by the user, as well as a method and a program corresponding thereto.

In order to achieve the above object, a commodity sales

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system and a corresponding method of the present invention are structured as follows.

A commodity sales system of the present invention is a system that is connected with a user computer in a communicable manner and is used when a user purchases a commodity, the commodity sales system including: a commodity price specification module that receives a purchase request of a selected commodity from the user computer and specifies a commodity price of the selected commodity; a quote determination module that receives a trade-in request of a used article and quotation requirement information, which is required for quotation of the used article, from the user computer and determines a trade-in quote of the used article, based on the received quotation requirement information; a deduction setting module that sets a deduction of the selected commodity, which is to be subtracted from the specified commodity price of the selected commodity, according to the trade-in quote of the used article thus determined; a difference calculation module that subtracts the setting of the deduction from the specified commodity price of the selected commodity to calculate a difference; and an amount payable notification module that notifies the user computer of the calculated difference as an amount payable.

The commodity sales system of the invention receives a

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purchase request of a selected commodity from the user computer

and specifies a commodity price of the selected commodity. The

commodity sales system also receives a trade-in request of a used

article and quotation requirement information, which is required

5   for quotation of the used article, from the user computer and

determines a trade-in quote of the used article, based on the

received quotation requirement information. The commodity

sales system sets a deduction of the selected commodity, which

is to be subtracted from the specified commodity price of the

10   selected commodity, according to the trade-in quote of the used

article thus determined, subtracts the setting of the deduction

from the specified commodity price of the selected commodity to

calculate a difference, and notifies the user computer of the

calculated difference as an amount payable (by transmission).

15   The commodity sales system of the invention automatically

subtracts the setting of the deduction from the specified

commodity price of the selected commodity and sends the

calculated difference as the amount payable to the user. This

arrangement simplifies the whole procedures, compared with a

20   prior art system that requires the user to separately pay the

purchase price of the selected commodity and receive the trade-in

price of the used article. Namely the arrangement of the

invention ensures the user-friendly sales of commodities and

trade-in of used articles.

In the specification hereof, the terminology 'trade-in of the used article' means that the system accepts the used article under the condition that the user newly purchases one or multiple

5   commodities.   The   terminology   'used   article'   in   the specification hereof represents an article that is not brand new and includes an article that has not been used at all but has become old with elapse of time, as well as an article that has been used for some time.

10   In the commodity sales system of the invention, the quote determination module, in response to receipt of the trade-in quote of the used article and the quotation requirement information, which is required for quotation of the used article, may specify a tentative quote of the used article based on the

15 quotation   requirement   information,   compare   the   specified tentative quote with a predetermined reference value, and determine either a price having a value range or a price having no value range as the trade-in quote of the used article according to a result of the comparison, and the deduction setting module

20 may set the deduction of the selected commodity corresponding to a minimum value in the value range of the price when the price having the value range is determined as the trade-in quote of the used article, while setting the deduction of the selected

commodity corresponding to the price having no value range when the price having no value range is determined as the trade-in quote of the used article. In this case, the predetermined reference value may be used to determine whether an assessment of the used article is required to settle a final trade-in price of the used article. Further in this case, the deduction setting module may set the deduction of the selected commodity corresponding to the minimum value in the value range of the price, and when a final trade-in price settled after an assessment of the used article exceeds the minimum value, the amount payable notification module may notify the user computer of a refund corresponding to a difference between the final trade-in price and the minimum value, together with the amount payable. Further in this case, the quote determination module, in the case where the price having no value range is determined as the trade-in quote of the used article, based on the result of the comparison between the tentative quote and the predetermined reference value, may determine either a settled price having no value range, which depends upon the tentative quote, as the trade-in quote of the used article or a preset fixed price, which does not depend upon the tentative quote, as the trade-in quote of the used article according to a value level of the tentative quote.

In the commodity sales system of the present invention,

the deduction setting module, in the case where the quote determination module determines trade-in quotes of multiple used articles, may set a total deduction of the selected commodity, which is to be subtracted from the specified commodity price of

5 the selected commodity, according to a sum of the trade-in quotes of the multiple used articles or a sum of deductions set for the respective used articles.

The commodity sales system of the invention may include an adjustment module that adjusts the difference calculated by

10 the difference calculation module to be not less than a predetermined value. In this case, the adjustment module may include a transmission sub-module that is activated to send the user computer a message showing that the trade-in request of the used article is not acceptable, instead of the amount payable

15 notification module. The 'message showing that the trade-in request of the used article is not acceptable' is, for example, a message showing that the number of used articles for a trade-in is limited because of an excess trade-in discount or a message showing that some of multiple used articles are not the subject

20 of a trade-in but are cashed out because of an excess trade-in discount. Here the cash-out represents acceptance of a used article without purchase of any commodity, and the cash-out price is generally set lower than the trade-in price.

A commodity sales method of the present invention is a method that is carried out when a user purchases a selected commodity, the commodity sales method including the steps of: (a) causing a server computer to receive a purchase request of a selected commodity from the user computer and specify a commodity price of the selected commodity; (b) causing the server computer to receive a trade-in request of a used article and quotation requirement information, which is required for quotation of the used article, from the user computer and determine a trade-in quote of the used article, based on the received quotation requirement information; (c) causing the server computer to set a deduction of the selected commodity, which is to be subtracted from the specified commodity price of the selected commodity, according to the trade-in quote of the used article thus determined; (d) causing the server computer to subtract the setting of the deduction from the specified commodity price of the selected commodity to calculate a difference; and (e) causing the server computer to notify the user computer of the calculated difference as an amount payable.

The commodity sales method of the invention receives a purchase request of a selected commodity from the user computer and specifies a commodity price of the selected commodity. The commodity sales method also receives a trade-in request of a used

article and quotation requirement information, which is required for quotation of the used article, from the user computer and determines a trade-in quote of the used article, based on the received quotation requirement information. The commodity

5 sales method sets a deduction of the selected commodity, which is to be subtracted from the specified commodity price of the selected commodity, according to the trade-in quote of the used article thus determined, subtracts the setting of the deduction from the specified commodity price of the selected commodity to

10 calculate a difference, and notifies the user computer of the calculated difference as an amount payable (by transmission). The commodity sales method of the invention automatically subtracts the setting of the deduction from the specified commodity price of the selected commodity and sends the

15 calculated difference as the amount payable to the user. This arrangement simplifies the whole procedures, compared with a prior art that requires the user to separately pay the purchase price of the selected commodity and receive the trade-in price of the used article. Namely the arrangement of the invention

20 ensures the user-friendly sales of commodities and trade-in of used articles.

In the commodity sales method of the invention, the step (c) may set the deduction to be not less than a preset support

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price.

In the commodity sales method of the invention, the step (b), in response to receipt of the trade-in quote of the used article and the quotation requirement information, which is required for quotation of the used article, may specify a tentative quote of the used article based on the quotation requirement information, compare the specified tentative quote with a predetermined reference value, and determine either a price having a value range or a price having no value range as the trade-in quote of the used article according to a result of the comparison, and the step (c) may set the deduction of the selected commodity corresponding to a minimum value in the value range of the price when the price having the value range is determined as the trade-in quote of the used article, while setting the deduction of the selected commodity corresponding to the price having no value range when the price having no value range is determined as the trade-in quote of the used article. In this case, the predetermined reference value may be used to determine whether an assessment of the used article is required to settle a final trade-in price of the used article. Further in this case, the step (c) may set the deduction of the selected commodity corresponding to the minimum value in the value range of the price, and when a final trade-in price settled after an

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assessment of the used article exceeds the minimum value, the step (e) may notify the user computer of a refund corresponding to a difference between the final trade-in price and the minimum value, together with the amount payable. Further in this case, the step (b), in the case where the price having no value range is determined as the trade-in quote of the used article, based on the result of the comparison between the tentative quote and the predetermined reference value, may determine either a settled price having no value range, which depends upon the tentative quote, as the trade-in quote of the used article or a preset fixed price, which does not depend upon the tentative quote, as the trade-in quote of the used article according to a value level of the tentative quote.

In the commodity sales method of the invention, the step (c), in the case where the step (b) determines trade-in quotes of multiple used articles, may set a total deduction of the selected commodity, which is to be subtracted from the specified commodity price of the selected commodity, according to a sum of the trade-in quotes of the multiple used articles or a sum of deductions set for the respective used articles.

In the commodity sales method of the invention, the step (d) may adjust the calculated difference to be not less than a predetermined value. In this case, when the step (d) adjusts

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the calculated difference to be not less than the predetermined value, the step (d) may further send the user computer a message showing that the trade-in request of the used article is not acceptable, instead of execution of the step (e).

5   The object of the invention is also to provide a used article quotation system that enables even a user with little computer-related knowledge to be readily informed of a quote of a used article, as well as a method and a program corresponding thereto.

10   In order to achieve the above object, a used article quotation system and a corresponding used article quotation method are structured as follows.

A used article quotation system of the present invention is a system that provides a user computer with a quote for

15   acceptance of a used article from a user, the used article quotation system including: a quotation requirement information acquisition module that, in response to receipt of a request for quotation of the user computer itself, which has been sent from the user computer, causes the user computer to automatically read

20   out quotation requirement information, which is required for quotation of the user computer, and acquires the quotation requirement information from the user computer; a quote determination module that determines a quote of the user computer,

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based on the acquired quotation requirement information; and a quotation information transmission module that sends quotation information, which includes the quote of the user computer determined by the quote determination module, to the user

5   computer.

In response to receipt of a request for quotation of the user computer itself, which has been sent from the user computer, the used article quotation system of the invention causes the user computer to automatically read out the quotation requirement

10   information, which is required for quotation of the user computer, and subsequently acquires the quotation requirement information from the user computer. The used article quotation system then determines the quote of the user computer based on the acquired quotation requirement information, and sends the quotation

15   information including the quote of the user computer to the user computer. Namely the used article quotation system of the invention determines the quote of the user computer, based on the quotation requirement information automatically read by the user computer. This arrangement enables even the user with

20   little knowledge of the quotation requirement information, that is, the user with little computer-related knowledge, to be readily informed of the quote of the user computer.

In the specification hereof, the terminology 'acceptance

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of the used article' includes both a trade-in that the system accepts the used article when the user purchases one or multiple commodities and a cash-out that the system accepts the used article when the user does not purchase any commodity.

5   In the used article quotation system of the invention, the quotation requirement information acquisition module may acquire information regarding each component of the user computer as the quotation requirement information. In this case, the information regarding each component of the user computer may

10   include at least a class of a CPU, a capacity of a memory, and a capacity of a hard disk. In this case, further, the used article quotation system of the invention may include a component price storage module that stores a mapping of a component price to each component of the user computer, and the quote determination

15   module may read the component price of each component of the user computer from the component price storage module, based on the information regarding each component of the user computer acquired by the quotation requirement information acquisition module, and determine the quote of the user computer according

20   to a sum of the component prices.

In one preferable application of the used article quotation system of the invention, in response to receipt of a request for quotation of the user computer itself, which has been sent from

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the user computer, the quotation requirement information acquisition module sends back a program, which causes the user computer to read out the quotation requirement information, to the user computer and subsequently acquires the quotation

5 requirement information from the user computer. This program may take advantage of a JAVA (the registered trademark by Sun Microsystems Inc.) applet or ActiveX (the registered trademark by Microsoft Corporation). The program may utilize a file for recording information regarding each component of the user

10 computer as the quotation requirement information or a control program for controlling each component of the user computer and thereby cause the user computer to read out the information regarding each component of the user computer. A typical example of such a file is a registry (that is, a database for central

15 control of the setting information with regard to the computer) in the operating system of Windows 95 (the registered trademark by Microsoft Corporation) or a later version. A typical example of the control program is Basic Input Output System (BIOS, a program for controlling devices connecting with the computer).

20 In the used article quotation system of the invention, the quote determination module may determine a trade-in quote when the acceptance of the user computer is a trade-in with purchase of a commodity and a cash-out quote when the acceptance of the

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user computer is a cash-out without purchase of any commodity, based on the quotation requirement information acquired by the quotation requirement information acquisition module.

A used article quotation method of the present invention is a method that provides a user computer with a quote for acceptance of a used article from a user, the used article quotation method including: (a) causing a server computer, in response to receipt of a request for quotation of the user computer itself, which has been sent from the user computer, to acquire the quotation requirement information which is required for quotation of the user computer, from the user computer; (b) causing the server computer to determine a quote of the user computer, based on the acquired quotation requirement information; and (c) causing the server computer to send quotation information, which includes the quote of the user computer.

In response to receipt of a request for quotation of the user computer itself, which has been sent from the user computer, the used article quotation method of the invention causes the user computer to automatically read out the quotation requirement information, which is required for quotation of the user computer, and subsequently acquires the quotation requirement information from the user computer. The used article quotation method then

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determines the quote of the user computer based on the acquired

quotation requirement information, and sends the quotation

information including the quote of the user computer to the user

computer. Namely the used article quotation method of the

5   invention determines the quote of the user computer, based on

the quotation requirement information automatically read by the

user computer. This arrangement enables even the user with

little knowledge of the quotation requirement information, that

is, the user with little computer-related knowledge, to be

10   readily informed of the quote of the user computer.

In the used article quotation method of the invention, the

step (a) may acquire information regarding each component of the

user computer as the quotation requirement information. In this

case, the information regarding each component of the user

15   computer may include at least a class of a CPU, a capacity of

a memory, and a capacity of a hard disk. Further in this case,

the step (b) may read a component price of each component of the

user computer from a component price storage module, which stores

a mapping of a component price to each component of the user

20   computer, based on the information regarding each component of

the user computer acquired in the step (a), and determine the

quote of the user computer according to a sum of the component

prices.

In the used article quotation method of the invention, the step (a), in response to receipt of the request for quotation of the user computer itself, which has been sent from the user computer, may send back a program, which causes the user computer

5   to read out the quotation requirement information, to the user computer and subsequently acquire the quotation requirement information from the user computer. The program may utilize either of a file for recording information regarding each component of the user computer as the quotation requirement

10   information or a control program for controlling each component of the user computer and thereby causes the user computer to read out the information regarding each component of the user computer.

In the used article quotation method of the invention, the

15   step (b) may determine a trade-in quote when the acceptance of the user computer is a trade-in with purchase of a commodity and a cash-out quote when the acceptance of the user computer is a cash-out without purchase of any commodity, based on the quotation requirement information acquired by the step (a).

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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 through 14 illustrate a first embodiment;

Fig. 1 schematically illustrates the construction of a

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server system in one embodiment of the invention;

Fig. 2 shows a component price table stored in a data storage device;

Fig. 3 shows a commodity price table stored in a data storage device;

Fig. 4 shows a time-series process of communication in a used article quotation site;

Fig. 5 shows one example of a quotation requirement information input window;

Fig. 6 is a flowchart showing a quotation window creation routine;

Fig. 7 shows a mapping of a level of the tentative quote to requirement of assessment and a trade-in quote, as well as to a deduction;

Fig. 8 shows one example of a quotation window;

Fig. 9 shows a time-series process of communication in a shopping site;

Fig. 10 is a flowchart showing an amount payable calculation routine;

Fig. 11 shows one example of a check window;

Fig. 12 shows one example of a purchase requirement information input window;

Fig. 13 shows one example of a trade-in requirement

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information input window;

Fig. 14 shows a time-series process of communication in each site;

Fig. 15 through 23 illustrate a second embodiment;

Fig. 15 schematically illustrates the construction of a used article quotation system in one embodiment of the invention;

Fig. 16 shows a component price table stored in a data storage device;

Fig. 17 shows a time-series process of communication;

Fig. 18 is a flowchart showing a quotation requirement information acquisition program;

Fig. 19 shows one example of a quotation requirement information;

Fig. 20 is a flowchart showing a quotation window creation routine; and

Fig. 21 through 23 show examples of a quotation window.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[First Embodiment]

A first embodiment of the invention is discussed below with reference to the accompanied drawings. Fig. 1 schematically illustrates the construction of a server system 10 in one embodiment of the invention, and Fig. 2 shows a database stored

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in a data storage device 16 connecting with a database server

14 in the server system 10 of Fig. 1.

The server system 10 of this embodiment includes a Web

server 12 and a database server 14, which are mutually connected

5   in a communicable manner via a network cable 18.   In the

specification hereof, the terminology 'trade-in' represents

acceptance of a user's used article on the condition of the user's

purchase of a new commodity.

The Web server 12 executes a diversity of programs stored

10   in an internal storage unit 13 and thereby functions as a server

to open a used article quotation site that provides a trade-in

quote of each used personal computer owned by each user or as

a server to open a shopping site that sells new personal computers.

The Web server 12 works as a contact for requests from user

15   computers 40 connecting with the Internet 20.   The Web server

12 functions to receive a request from each of the user computers

40, to make a reply to the request, and to transmit the reply

to the user computer 40.   The Web server 12 also functions to

receive quotation requirement information from each of the user

20   computers 40, to transfer the received quotation requirement

information to the database server 14, to activate the database

server 14 for computation of a trade-in quote, to receive a result

of the computation, to make a reply based on the received

computation result, and to transfer the reply to the user computer

40. Here the quotation requirement information represents

information on classes and performances of components

constituting used personal computers, as discussed in detail

5   later.

A data storage device 16 is connected to the database server

14 and stores a component quote table, in which component names

and respective classes of components included in used personal

computers are mapped to values, as shown in Fig. 2. The

10   components of the used personal computers are grouped by the

component names, such as CPUs, memories, HDDs, FDDs CD-ROMs, LAN

cards, instruction manuals, and packages. The CPUs are further

classified into classes by the name of the processor and the clock

frequency, and the values are set for the respective classes.

15   The memories and the HDDs are classified into classes by their

capacities, and the values are set for the respective classes.

Although not being specifically illustrated, the CD-ROMs are

classified into classes by the function (for example, a DVD

readable function or a DVD writable function), and the values

20   are set for the respective classes. The values of the FDDs, the

LAN cards, the instruction manuals, and the packages do not depend

upon their classes but are set according to their presence or

absence. The data storage device 16 stores a commodity price

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table, which represents the mapping of the name of each commodity on sale to its price, as shown in Fig. 3.

The database server 14 is connected with the data storage device 16. The database server 14 functions to retrieve the

5 component price table (see Fig. 2) stored in the data storage device 16, based on the quotation requirement information regarding each used personal computer, which has been received from each of the user computers 40 via the Web server 12, to compute a total value of respective used components as a minimum trade-in

10 quote Pmin, and to transfer the computed minimum trade-in quote Pmin to the Web server 12. The database server 14 also functions to retrieve the commodity price table (see Fig. 3) stored in the data storage device 16 in response to an inquiry request for the commodity price received from the Web server 12 and to transfer

15 the retrieved commodity price to the Web server 12.

The user computer 40 is a known general-purpose personal computer used by either an individual or a legal entity. The user computer 40 utilizes a Web browser installed therein to gain access to the used article quotation site and the shopping site

20 opened by the Web server 12 via the Internet 20. The user computer 40 makes various pieces of information shown on the display 42.

The server system 10 of this embodiment works as discussed below, when functioning to open the used article quotation site.

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Fig. 4 shows a time series process of communication between the Web server 12, the database server 14, and the user computer 40.

The user activates the Web browser on the user computer 40 and inputs a URL (Uniform Resource Locator) of the used article quotation site opened by the Web server 12. The user computer 40 then sends an acquisition request for a top page of the used article quotation site to the Web server 12 via the Internet 20 (step S100). The Web server 12 receives the acquisition request and transmits a top page window (not shown) of the used article quotation site to the user computer 40 via the Internet 20 (step S110). The user computer 40 opens the received top page window of the used article quotation site on the display 42.

When the user clicks a request button for a trade-in quotation provided on the top page window of the used article quotation site, the user computer 40 sends a request for a trade-in quotation to the Web server 12 via the Internet 20 (step S120). The Web server 12 receives the quotation request and transmits a quotation requirement information input window to the user computer 40 via the Internet 20 (step S130). The user computer 40 opens the received quotation requirement information input window on the display 42. Here the quotation requirement information is information required for trade-in quotation of each used personal computer and represents information on the

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respective components of each used personal computer. Fig. 5

shows an example of the quotation requirement information input

window. In this illustrated example, the user opens respective

pull-down menus and selects entries of the processor name and

5   the clock frequency for the CPU, of the capacities for the memory

and the HDD, of the function (for example, a DVD readable function

or a DVD writable function) for the CD-ROM, and of the presence

or absence for the FDD, the LAN card, the instructions manual,

and the package.

10   The user inputs information regarding the respective

components on quotation requirement information input window and

clicks an 'OK' button provided on the quotation requirement

information input window (see Fig. 5). The user computer 40 then

transmits the quotation requirement information to the Web server

15   12 via the Internet 20 (step S140). The Web server 12 receives

the transmitted quotation requirement information and sends the

quotation requirement information and a request signal for

trade-in quote to the database server 14 (step S150). The

database server 14 receives the request signal for trade-in quote

20   and the quotation requirement information, refers to the

component price table (see Fig. 2) stored in the data storage

device 16 based on the quotation requirement information, and

computes the minimum trade-in quote Pmin. The concrete procedure

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of computation reads the value mapped to the processor name of the CPU and the clock frequency, the value mapped to the capacity of the memory, the value mapped to the capacity of the HDD, and the other additional values from the component price table shown

5   in Fig. 2 and calculates the total of these values of the components according to Equation 1 given below as the minimum trade-in quote Pmin:

[Equation 1]

Pmin = Σ (Values of Components)

10   After computation of the minimum trade-in quote Pmin, the database server 14 transmits the computed minimum trade-in quote Pmin to the Web server 12 (step S160). The Web server 12 receives the transmitted minimum trade-in quote Pmin from the database server 14, and executes a quotation window creation routine shown

15   in the flowchart of Fig. 6. When the quotation window creation routine starts, the Web server 12 first calculates a maximum trade-in quote Pmax from the minimum trade-in quote Pmin received from the database server 14 (step S500). One example of an equation used for calculating the maximum value Pmax is given

20   as Equation 2 below:

[Equation 2]

Pmax = Pmin × k

where k is a constant exceeding a value '1'.

The Web server 12 sets the minimum trade-in quote Pmin to a tentative quote Ppr (step S502) and compares the tentative quote Ppr with a threshold value P1 (step S504). The threshold value P1 is set as an assessment requirement judgment value. When the tentative quote Ppr exceeds the threshold value P1, the final trade-in price is determined according to the result of an assessment of the used personal computer. When the tentative quote Ppr is not greater than the threshold value P1, on the other hand, the final trade-in price is determined without assessment of the used personal computer. When the tentative quote Ppr exceeds the threshold value P1 at step S504, a trade-in assessment flag F is set equal to a value '1', which represents requirement of an assessment for determination of the final trade-in price, and a trade-in quote Pest is set to have a value range between the minimum trade-in quote Pmin and the maximum trade-in quote Pmax (step S506). In this case, the final trade-in price is determined in the range from the minimum trade-in quote Pmin to the maximum trade-in quote Pmax, based on assessment of the used personal computer.

When the tentative quote Ppr is not greater than the threshold value P1 at step S504, on the other hand, the tentative quote Ppr is subsequently compared with another threshold value P2 (step S508). The threshold value P2 is smaller than the

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threshold value P1 and is set as a value level criterion to measure

the value level of the tentative quote Ppr. When the tentative

quote Ppr exceeds the threshold value P2, the trade-in assessment

flag F is set equal to a value '0', which represents no requirement

5   of assessment for determination of the final trade-in price, and

a function f(Ppr) of the tentative quote Ppr is set to the trade-in

quote Pest (step S510). Here the function f(Ppr) = Ppr. In this

case, the trade-in price is fixed to the tentative quote Ppr,

that is, the minimum trade-in quote Pmin. The minimum trade-in

10   quote Pmin is the firm trade-in price of the used personal computer

without   assessment.   The   minimum   trade-in   quote   Pmin   is

calculated as the total of the values of the components included

in   the   used   personal   computer.   Namely   the   respective   used

personal computers have different values of the minimum trade-in

15   quote Pmin.

When   the   tentative   quote   Ppr   is   not   greater   than   the

threshold value P2 at step S508, the trade-in assessment flag

F   is   set   equal   to   '0',   which   represents   no   requirement   of

assessment for determination of the final trade-in price, and

20   a fixed price C is set to the trade-in quote Pest (step S512).

Here the fixed price C is equal to the threshold value P2. In

this case, the fixed price C is set to the trade-in price. Namely

the fixed price C is the firm trade-in price of the used personal

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computer without assessment. This fixed price C does not depend upon the components of the used personal computer.

After completion of the settings of the trade-in assessment flag F and the trade-in quote Pest at any of the steps S506, S510, and S512, the Web server 12 creates a quotation window, based on the settings (step S514). The program then exits from this quotation window creation routine. Fig. 7 shows the mapping of the level of the tentative quote Ppr to the requirement of assessment and the trade-in quote Pest, as well as to a deduction D (discussed later).

Referring back to the process chart of Fig. 4, the Web server 12 sends the quotation window created at step S514 and cookie information, which includes the setting of the trade-in quote Pest and the quotation requirement information received from the user computer 40, to the user computer 40 (step S170). The user computer 40 opens the received quotation window on its display 42 and stores the received cookie information into a predetermined storage area in the user computer 40.

The quotation window opening on the display 42 is described below with reference to some concrete examples. When the tentative quote Ppr exceeds the threshold value P1, a value range between the minimum trade-in quote Pmin and the maximum trade-in quote Pmax is given as the trade-in quote as shown in Fig. 8(a).

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The quotation window includes a description regarding the definition of the trade-in quote (see Notandum 1 in Fig. 8(a)), a description showing that the final trade-in price will be determined based on the assessment of the used article (see

5 Notandum 2 in Fig. 8(a)), a 'Trade-in Request' button selected to effectuate a trade-in, and a 'Cancel' button selected to throw up a trade-in. The quotation window of Fig. 8(a) also includes a description showing that any malfunctioning used article is not the subject of trade-in (see Notandum 3) and a description

10 regarding transfer of the proprietary right (see Notandum 4).

When the tentative quote Ppr is not greater than the threshold value P1 but exceeds the threshold value P2, the function f(Ppr) (= the minimum trade-in quote Pmin), that is, a settled price of no value range, which is varied according to

15 the tentative quote Ppr, is given as the trade-in quote as shown in Fig. 8(b). The quotation window of Fig. 8(b) includes the description regarding the definition of the trade-in quote (see Notandum 1) and a description showing that the final trade-in price is settled as the trade-in quote and that no assessment

20 of the used article is carried out (see Notandum 2), as well as the 'Trade-in Request' button, the 'Cancel' button, and Notandum 3 and 4 (not shown), which are identical with those of Fig. 8(a).

When the tentative quote Ppr is not greater than the

threshold value P2, a fixed price C (= the threshold value P2) of no value range that does not depend upon the tentative quote Ppr, is given as the trade-in quote as shown in Fig. 8(c). The quotation window of Fig. 8(c) includes the description regarding

5   the definition of the trade-in quote (see Notandum 1) and a description showing that the final trade-in price is fixed as the trade-in quote and that no assessment of the used article is carried out (see Notandum 2), as well as the 'Trade-in Request' button, the 'Cancel' button, and Notandum 3 and 4 (not shown),

10   which are identical with those of Fig. 8(a).

Referring back to the process chart of Fig. 4, the user reads the notandum to recognize the contents of the quotation window and clicks the 'Trade-in Request' button to effectuate a trade-in or the 'Cancel' button to throw up a trade-in. The

15   user computer 40 sends a trade-in request signal or a cancellation request signal to the Web server 12 via the Internet 20 in response to the click of the 'Trade-in Request' button or the 'Cancel' button (step S180). The Web server 12 receives either the trade-in request signal or the cancellation request signal and

20   sends a window corresponding to the received request signal to the user computer 40 (step S190). When the received signal represents the trade-in request, the Web server 12 sends a top page window of the shopping site where the user can purchase new

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commodities, to the user computer 40. When the received signal represents the cancellation request, on the other hand, the Web server 12 sends a top page window of the used article quotation site to the user computer 40.

5   The server system 10 of this embodiment works as discussed below, when functioning to open the shopping site. Fig. 9 shows a time-series process of communication between the Web server 12, the database server 14, and the user computer 40. It is here assumed that the user refers to the result of the quotation with regard to the used personal computer at the used article quotation
10   site as discussed above and clicks the 'Trade-in Request' button at step S180 and that the top page window of the shopping site is sent to the user computer 40 in response to the click of the 'Trade-in Request' button at step S190.

15   The user selects one or multiple desired commodities among a diversity of computer products provided on the top page window of the shopping site (not shown) and adds all of the selected commodities to a shopping cart. In this example, it is assumed that the user adds a brand-new personal computer as the desired
20   commodity to the shopping cart. Transmission of requests and replies is repeated between the user computer 40 and the Web server 12 in this process, although the details of the communication are not discussed specifically. In response to the user's click

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of a Purchase button (not shown), the user computer 40 sends a

purchase request of the commodity added to the shopping cart to

the Web server 12 via the Internet 20 (step S320). Here the user

computer 40 attaches the cookie information received from the

5   Web server 12 at step S170 to the purchase request and sends the

cookie information together with the purchase request to the Web

server 12.   The Web server 12 stores the received cookie

information into the internal storage unit 13, and sends an

inquiry request signal for the price of the selected commodity

10   as the object of purchase to the database server 14 (step S330).

The database server 14 receives the inquiry request signal for

the price of the selected commodity, reads the commodity price

mapped to the name of the selected commodity from the commodity

price table (see Fig. 3) stored in the data storage device 16,

15   and sends the read-out commodity price to the Web server 12 (step

S340).

The Web server 12 receives the commodity price and executes

an amount payable calculation routine shown in the flowchart of

Fig. 10. The Web server 12 reads the setting of the trade-in

20   quote Pest included in the cookie information stored in the

internal storage unit 13 (step S600), and determines whether the

setting of the trade-in quote Pest is the price having the value

range of the minimum trade-in quote Pmin to the maximum trade-in

quote Pmax, the settled price f(Ppr) of no value range, or the fixed price C of no value range (step S602). When the setting of the trade-in quote Pest is the price having the value range of the minimum value Pmin to the maximum value Pmax, the minimum trade-in quote Pmin is set to the deduction D (step S604). When the setting of the trade-in quote is the settled price f(Ppr) of no value range, which depends upon the tentative quote Ppr, the trade-in quote Pest (=f(Ppr)) is set to the deduction D (step S606). When the setting of the trade-in quote is the fixed price C, the trade-in quote Pest (=C) is set to the deduction D (step S608). After any of the processing at steps S604, S606, and S608, a difference obtained by subtracting the deduction D from the commodity price is calculated as an amount payable (step S610). The program then exits from this amount payable calculation routine. Referring back to the process chart of Fig. 9, the Web server 12 sends a check window to the user computer 40 (step S350). The check window includes the name of the commodity as the object of purchase, the commodity price, the used personal computer as the subject of the trade-in, and its trade-in quote, and the calculated amount payable.

One example of the check window is shown in Fig. 11. In the illustrated example of the check window, the setting of the trade-in quote Pest is the price having the value range of the

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minimum trade-in quote Pmin to the maximum trade-in quote Pmax. The final trade-in price is determined in the range of the minimum value Pmin to the maximum value Pmax after the system makes an assessment of the used personal computer. When the final

5   trade-in price exceeds the minimum value Pmin, the calculated amount payable is disadvantageous to the user, due to underestimation of the deduction D. The difference between the final trade-in price and the minimum trade-in quote Pmin is thus paid back to the user for the advantage of the user. This is

10   described in Notandum 2 on the check window. A trade-in subject box of the check window shows part or all of the quotation requirement information, for example, the processor name and the clock frequency with regard to the CPU and the capacities with regard to the memory and the HDD. When the setting of the trade-in

15   quote Pest is the settled price f(Ppr) of no value range or the fixed price C of no value range, the final trade-in price is settled without an assessment. The deduction D is accordingly fixed. In such cases, Notandum 1 and 2 are omitted from the check window.

20   The user checks the contents of the check window and clicks an 'OK' button to effectuate a trade-in or a 'Cancel' button to throw up a trade-in. The user has already clicked the 'Trade-in Request' button at the used article quotation site and, in many

cases, clicks the 'OK' button on the check window. In the

description below, it is assumed that the user clicks the 'OK'

button. In response to a click of the 'OK' button, the user

computer 40 sends a check complete signal to the Web server 12

5   via the Internet 20 (step S360). The Web server 12 receives the

check complete signal and sends back a purchase requirement

information input window to the user computer 40 via the Internet

20 (step S370). The user computer 40 then opens the received

purchase requirement information input window on the display 42.

10   One example of the purchase requirement information input window

is shown in Fig. 12. Here the purchase requirement information

includes the postal address, the name, the telephone number, and

the mail address of the user, a delivery address of commodities

where one or multiple commodities purchased at the shopping site

15   are to be delivered, the telephone number of the delivery address,

the date and time of delivery, and the payment policy. In the

case where the delivery address of commodities is identical with

the postal address of the user, the user is not required to enter

the delivery address of commodities or the telephone number of

20   the delivery address but is only required to click a radio button

'Yes' in an input box 'Delivery Address of Commodities = User's

Address?' on the purchase requirement information input window

of Fig. 12. The user clicks a 'Send' button after entry of the

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required information on this purchase requirement information input window. The user computer 40 then sends the input purchase requirement information to the Web server 12 via the Internet 20 (step S380).

5   The Web server 12 receives the purchase requirement information and subsequently transmits a trade-in requirement information input window to the user computer 40 via the Internet 20 (step S390). The user computer 40 opens the received trade-in requirement information input window on the display 42. One

10   example of the trade-in requirement information input window is shown in Fig. 13. Here the trade-in requirement information includes a pickup address of the used article, the telephone number of the pickup address, the date and time of pickup, and a remittance address of the trade-in money. In the case where

15   the pickup address of the used article is identical with either the delivery address of commodities or the postal address of the user, the user is not required to enter the pickup address of the used article or the telephone number of the pickup address but is only required to click a radio button 'Yes' in an input

20   box 'Pickup Address of Used Article = User's Address?' or a radio button 'Yes' in an input box 'Pickup Address of Used Article = Delivery Address of Commodities?' on the trade-in requirement information input window of Fig. 13. The user clicks a 'Send'

button after entry of the required information on this trade-in

requirement information input window. The user computer 40 then

sends the input trade-in requirement information to the Web

server 12 via the Internet 20 (step S400). The Web server 12

5   receives the trade-in requirement information and sends back an

acknowledgement message to the user computer 40 (step S410).

This terminates the series of processing at the shopping site.

The server system 10 receives the payment from the user

and delivers the selected commodities to the specified delivery

10   address. The server system 10 also picks up the used personal

computer as the subject of the trade-in, makes an assessment of

the used personal computer when assessment is required, and

settles the final trade-in price in the range of the minimum

trade-in quote Pmin to the maximum trade-in quote Pmax according

15   to the result of the assessment. In the case where the final

trade-in price exceeds the preset deduction D, the difference

between the final trade-in price and the deduction D is paid back

to the user. When no assessment is required, on the other hand,

the series of operations terminate at the pickup of the used

20   personal computer.

The respective constituents of the embodiment are mapped

to the elements of the present invention. The Web server 12 and

the database server 14 of this embodiment correspond to the

commodity price specification module and the quote determination

module of the invention. The Web server 12 also corresponds to

the deduction setting module, the difference calculation module,

and the amount payable notification module of the invention.

5   As discussed above, in response to receipt of a purchase

request of one or multiple commodities from the user computer

40, the server system 10 of this embodiment specifies the price

of each selected commodity (commodity price). In response to

receipt of a trade-in request of a used personal computer and

10   quotation requirement information required for quotation of the

used personal computer from the user computer 40, the server

system 10 determines the trade-in quote Pest of the used personal

computer based on the quotation requirement information, sets

a deduction D of the commodity price according to the

15   predetermined trade-in quote Pest, calculates the difference by

subtracting the deduction D from the commodity price, and informs

the user computer 40 of the calculated difference as the amount

payable.   The structure of the embodiment automatically

subtracts the preset deduction D from the commodity price and

20   informs the user of the difference as the amount payable. This

arrangement desirably simplifies the procedure, compared with

the prior art structure that requires the user to go through both

the procedure of paying the purchase price of each selected

commodity and the procedure of receiving the trade-in money of the used article. Namely the arrangement of the embodiment ensures the user friendly sales of commodities and trade-in of used articles.

5   The deduction D is not less than the fixed price C. Namely the fixed price C represents a support price. The user can thus advantageously receive at least the fixed price C as the trade-in value of the used personal computer.

When the tentative quote Ppr of the used personal computer

10   exceeds the threshold value P1, the server system 10 of the embodiment determines requirement of an assessment to settle the final trade-in price of the used personal computer. The server system 10 thus sets the price having the predetermined value range (that is, the value range of the minimum trade-in quote Pmin to

15   the maximum trade-in quote Pmax) to the trade-in quote Pest, and determines the final trade-in price in this range according to the result of the assessment. In this case, the server system 10 sets the minimum trade-in quote Pmin to the deduction D and automatically allows a reduction of the commodity price. The

20   amount payable is accordingly reduced. When the final trade-in price of the used personal computer determined according to the result of the assessment exceeds the minimum trade-in quote, the difference is paid back to the user. This arrangement desirably

heightens the user's satisfaction level.

When the tentative quote Ppr of the used personal computer is not greater than the threshold value P1, on the other hand, the server system 10 of the embodiment determines no requirement

5 of an assessment to settle the final trade-in price of the used personal computer. The server system 10 thus sets the price of no value range (the settled price f(Ppr) or the fixed price C) to the trade-in quote Pest, and settles the setting of the trade-in quote Pest as the final trade-in price. The deduction D is

10 reasonably determined according to the setting of the price having no value range. In the case of a relatively high value of the tentative quote Ppr, that is, a relatively high valuation of the used personal computer, the settled price f(Ppr) of no value range depending upon the tentative quote Ppr is set to the

15 trade-in quote Pest. In the case of a relatively low value of the tentative quote Ppr, that is, a relatively low valuation of the used personal computer, the fixed price C of no value range is set to the trade-in quote Pest. This arrangement desirably heightens the user's satisfaction level, compared with the prior

20 art technique that uniformly sets the fixed price C to the trade-in quote Pest under the condition of no requirement of an assessment to settle the final trade-in price.

The first embodiment discussed above is only illustrative

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and not restrictive in any sense.   There may be many modifications,
changes, and alterations of the first embodiment.

For example, in the structure of the embodiment discussed
above, when the user computer 40 gives a trade-in quotation
5   request with regard to multiple used articles, the Web server
12 may set the minimum trade-in quote Pmin of each used article
computed by the database server 14 to the tentative quote Ppr
and may specify the sum of deductions D read from the table of
Fig. 7 as a total deduction from the commodity price.   This means
10   that the total deduction is determined according to the sum of
the trade-in quotes Pest obtained from the table of Fig. 7.   This
arrangement enables multiple used articles to be taken as a
trade-in for purchase of commodities, and gives a greater price
reduction to the user, compared with a trade-in of only one used
15   article.

In the structure of the above embodiment, the Web server
12 may adjust the amount payable in the check window of Fig. 11,
that is, the difference obtained by subtracting the setting of
the deduction D from the commodity price, to be not lower than
20   a preset value.   When the amount payable is below the preset value,
one possible application may send a message, which tells that
the used personal computer is not taken as a trade-in because
of the insufficient purchase price of the commodity or because

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of the excess trade-in discount, to the user computer 40. In response to a trade-in request with regard to multiple used articles, another possible application may limit the number of used articles for a trade-in, so as to make the amount payable

5   not lower than the preset value. The used articles, which are not the subject of the trade-in, may be cashed out. Here the cash-out represents acceptance of a used article without purchase of any commodity, and the cash-out price is generally set lower than the trade-in price.

10   In the embodiment discussed above, the server system 10 receives the information regarding the trade-in quotation of a used article from the user computer 40 at the used article quotation site and subsequently receives the information regarding the purchase procedure of commodities from the user

15   computer 40 at the shopping site. On the contrary, the server system 10 may first receive the information regarding the purchase procedure of commodities from the user computer 40 at the shopping site and then require the user computer 40 to enter the information regarding the trade-in quotation of a used

20   article at the used article quotation site. The series of operations in the latter case is shown in the process chart of Fig. 14. In the time-series process of Fig. 14, when the user enters the URL of a shopping site on the Web browser, the user

computer 40 sends an acquisition request for a top page of the

shopping site to the Web server 12 via the Internet 20 (step S300).

The Web server 12 receives the acquisition request and sends a

top page window of the shopping site to the user computer 40 via

5   the Internet 20 (step S310). The user computer 40 opens the

received top page window of the shopping site on the display 42.

When the user adds one or multiple desired commodities for

purchase to a shopping cart and clicks a purchase button (not

shown), the user computer 40 sends a purchase request (without

10   cookie) of the commodities added to the shopping cart to the Web

server 12 via the Internet 20 (step S320). The Web server 12

receives the purchase request and sends an inquiry request signal

for the price of each selected commodity to the database server

14 (step S330). When receiving the price of each selected

15   commodity from the database server 14 (step S340), the Web server

12 sends the purchase requirement information input window (see

Fig. 12) to the user computer 40 via the Internet 20 (step S370).

The Web server 12 then receives the purchase requirement

information from the user computer 40. After this series of

20   processing at the shopping site, the Web server 12 executes a

series of processing at the used article quotation site. The

processing of steps S100 through S180 in this modified

arrangement is similar to the processing of the above embodiment

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shown in the process chart of Fig. 4 and is thus not specifically described here. The only differences are that no cookie information is attached to the quotation window at step S170 and that the Web server 12 receives a trade-in request at step S180.

5   The Web server 12 then executes the amount payable calculation routine shown in the flowchart of Fig. 10 to determine the amount payable, creates the check window shown in Fig. 11, and sends the check window to the user computer 40 (step S350). The Web server 12 receives a check complete signal from the user computer

10   40 (step S360), and sends the trade-in requirement information input window (see Fig. 13) to the user computer 40 via the Internet 20 (step S390). The Web server 12 subsequently receives the trade-in requirement information from the user computer 40 (step S400), and sends back the acknowledgement message to the user

15   computer 40 (step S410). The details of the respective steps have been discussed in the above embodiment and are thus not described here. The procedure of Fig. 14 ensures the similar effects to those of the embodiment discussed above.

In the server system 10 of the embodiment, the Web server

20   12 sends the cookie information, which includes the minimum trade-in quote Pmin, the maximum trade-in quote Pmax, and the quotation requirement information received from the user computer 40, to the user computer 40. This procedure may be

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modified as discussed below. According to the modified procedure, the Web server 12 allocates a quotation ID to the trade-in quote and the quotation requirement information, creates a quotation window including the quotation ID, the trade-in quote, and the

5   quotation requirement information, and stores the created quotation window with the quotation ID into the internal storage unit 13 of the Web server 12. A window opening in response to the purchase request at the shopping site has a quotation ID input box. When the user has obtained the trade-in quote at the used

10   article quotation site before moving into the shopping site, the user enters the given quotation ID in the quotation ID input box and then gives a purchase request for commodities. The user computer 40 sends the purchase request and the quotation ID to the Web server 12 via the Internet 20. The Web server 12 retrieves

15   the internal storage unit 13, reads the trade-in quote and the quotation requirement information corresponding to the received quotation ID, and creates the check window (see Fig. 11). This arrangement also ensures the similar functions and effects to those of the embodiment discussed above. The trade-in quote and

20   the quotation requirement information are stored in the internal storage unit 13 of the Web server 12. This facilitates the information management by the Web server 12.

The procedure of the embodiment reads the values of the

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components included in each used personal computer from the component price table and specifies the total of the values of the components as the minimum trade-in quote Pmin. One modification may specify the total value of the components as

5 the maximum trade-in quote Pmax and determine the minimum trade-in quote Pmin based on the maximum trade-in quote Pmax. Another modification may prepare a component price table including both a minimum trade-in price and a maximum trade-in price corresponding to each component and compute both the total

10 of the maximum prices of the components as the maximum trade-in quote Pmax and the total of the minimum prices of the components as the minimum trade-in quote Pmin. Any appropriate value other than the minimum trade-in quote Pmin (for example, the maximum trade-in quote Pmax) may be set to the tentative quote Ppr, instead

15 of the minimum trade-in quote Pmin.

The above embodiment regards the used personal computers. The technique of the invention is also applicable to a diversity of other used articles, for example, used peripheral equipment of personal computers like displays, printers, and scanners, used

20 office automation equipment like photocopiers, facsimiles, and paper shredders, used home electric appliances like television sets, refrigerators, washing machines, and microwave ovens, used vehicles like automobiles, motorbikes, bicycles, and boats, used

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sports equipment including golf clubs, tennis rackets, skies, and snowboards, and existing homes like apartments and houses.

In the structure of the embodiment discussed above, the server system 10 includes two servers, the Web server 12 and the database server 14. The server system may have only one server, where the Web server 12 has the functions of both the database server 14 and the Web server 12. The server system may otherwise include three or more servers. The server system opening the used article quotation site may be separate from the server system opening the shopping site. These two server systems may be constructed as the server system of the invention.

[Second Embodiment]

A second embodiment of the invention is discussed below with reference to the accompanied drawings. Fig. 15 schematically illustrates the construction of a used article quotation system 50 in one embodiment of the invention, and Fig. 16 shows a database stored in a data storage device 56 connecting with a database server 54 in the used article quotation system 50 of Fig. 15.

The used article quotation system 50 of this embodiment includes a Web server 52 and a database server 54, which are mutually connected in a communicable manner via a network cable

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58.

The Web server 52 opens a used article quotation site, which shows quotes of each used personal computer owned by each user. The Web server 52 works as a contact for requests from user computers 80 connecting with the Internet 20. The Web server 52 functions to receive a request from each of the user computers 80, make a reply to the request, and transmit the reply to the user computer 80. The Web server 52 also functions to receive quotation requirement information from each of the user computers 80, transfer the quotation requirement information to the database server 54, activate the database server 54 to compute a cash-out quote, receive a result of the computation, make a reply based on the received computation result, and transfer the reply to the user computer 80. The quotation requirement information represents information on classes and performances of components constituting used personal computers, as discussed in detail later.

A data storage device 56 is connected to the database server 54 and stores a component price table, in which component names and respective classes of components included in used personal computers are mapped to values, as shown in Fig. 16. The components of the personal computers are grouped by the component names, such as CPUs, memories, HDDs, FDDs CD-ROMs, LAN cards,

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and operating systems (OS). The CPUs are further classified into classes by the name of the processor and the clock frequency, and the values are set for the respective classes. The memories and the HDDs are classified into classes by their capacities, and the values are set for the respective classes. Although not being specifically illustrated, the CD-ROMs are classified into classes by the function (for example, a DVD readable function or a DVD writable function), and the values are set for the respective classes. The values of the FDDs and the LAN cards do not depend upon their classes but are set according to their presence or absence. The values of the operating systems (OS) as the software are set for the respective versions (for example, Windows 95, 98, Me, XP).

The database server 54 is connected with the data storage device 56. The database server 54 functions to retrieve the data storage device 56, based on the quotation requirement information regarding each used personal computer, which has been received from each of the user computers 80 via the Web server 52, compute a total value of respective used components as a maximum cash-out quote PAmax, and transfer the computed maximum cash-out quote PAmax to the Web server 52.

The user computer 80 is a known general-purpose personal computer used by either an individual or a legal entity. The

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user computer 80 utilizes a Web browser installed therein to gain access to the used article quotation site opened by the Web server 52 via the Internet 20. The user computer 80 makes various pieces of information shown on its display 82.

5   The used article quotation system 50 of this embodiment is operated in the manner discussed below. Fig. 17 shows a time series process of communication between the Web server 52, the database server 54, and the user computer 80.

The user activates the Web browser on the user computer 10   80 and inputs a URL (Uniform Resource Locator) of the used article quotation site opened by the Web server 52. The user computer 80 then sends an acquisition request for a top page of the used article quotation site to the Web server 52 via the Internet 20 (step S700). The Web server 52 receives the acquisition request 15   and transmits a top page window (not shown) of the used article quotation site to the user computer 80 via the Internet 20 (step S710). The user computer 80 opens the received top page window of the used article quotation site on the display 82.

The user clicks a quotation request button (not shown) 20   provided on the top page window of the used article quotation site. The quotation request button is clicked to request a quotation for acceptance of the currently used user computer 80. In response to a click of the quotation request button, the user

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computer 80 sends a quotation request to the Web server 52 via the Internet 20 (step S720). The Web server 52 receives the quotation request and sends back a quotation requirement information acquisition program to the user computer 80 (step

5   S730). The quotation requirement information acquisition program is a Web program executed by the user computer 80 and is created as a JAVA applet or Active X.

The user computer 80 executes the received quotation requirement information acquisition program as shown in the

10 flowchart of Fig. 18. In this example, it is assumed that the OS used by the user computer 80 is Windows 98. When the quotation requirement information acquisition program starts, the user computer 80 first reads information regarding the hardware construction incorporated in the user computer 80 from a registry

15 (step S800). A registry key 'HKEY_LOCAL_MACHINE' has been given to the registry, and there is a memory area in its lower hierarchy for storing the information regarding the hardware construction. The user computer 80 thus reads the specifications of the own components, for example, the processor name and the clock

20 frequency of the CPU, the capacity of the memory, and the capacity of the HDD, from this memory area. The user computer 80 subsequently reads information regarding the software configuration incorporated in the user computer 80 from the

registry (step S810). As mentioned above, the registry key HKEY_LOCAL_MACHINE' has been given to the registry, and there is a memory area in its lower hierarchy for storing the information regarding the software configuration. The user computer 80 thus

5   reads the specifications of the own software, for example, the version of the OS, from this memory area. The user computer 80 then generates quotation requirement information, based on the read-out information regarding the hardware construction and the software configuration (step S820). This terminates the

10 quotation requirement information acquisition program. One example of the quotation requirement information thus generated is shown in Fig. 19.

Referring back to the process chart of Fig. 17, the user computer 80 sends the quotation requirement information as shown

15 in Fig. 19 to the Web server 52 via the Internet 20 (step S740). The Web server 52 receives the quotation requirement information and transmits the received quotation requirement information and a request signal for a cash-out quote to the database server 54 (step S750). The database server 54 receives the request signal

20 for a cash-out quote and the quotation requirement information, refers to the component price table (see Fig. 16) stored in the data storage device 56 based on the quotation requirement information, and computes a maximum cash-out quote PAmax. The

concrete procedure of computation reads the value mapped to the

processor name and the clock frequency of the CPU, the value mapped

to the capacity of the memory, the value mapped to the capacity

of the HDD, and the other additional values from the component

5   price table shown in Fig. 16 and calculates the total of these

values of the components according to Equation 3 given below as

the maximum cash-out quote PAmax:

[Equation 3]

$$PAmax = \Sigma \ (Values \ of \ Components)$$

10   After computation of the maximum cash-out quote PAmax, the

database server 54 transmits the computed maximum cash-out quote

PAmax to the Web server 52 (step S760). The Web server 52 receives

the transmitted maximum cash-out quote PAmax and executes a

quotation window creation routine shown in the flowchart of Fig.

15   20. When the quotation window creation routine starts, the Web

server 52 first calculates a minimum cash-out quote PAmin, a

maximum trade-in quote PBmax, and a minimum trade-in quote PBmin

from the maximum cash-out quote PAmax received from the database

server 54 (step S910). One example of equations for calculating

20   the respective values are given as Equations 4 below:

[Equations 4]

$$PAmin = PAmax \times k$$

$$PBmax = PAmax + \alpha$$

PBmin = PBmax × k'

(where k < 1, k' <1, and α > 0)

The maximum cash-out quote PAmax is compared with a threshold value P1 (step S920). The threshold value P1 is set to a specified value of criterion for determining that the user computer 80 alone is not worth being redeemed by the used article quotation system 50, when the maximum cash-out quote PAmax is not greater than the threshold value P1. When the maximum cash-out quote PAmax exceeds the threshold value P1 at step S920, it is determined that the user computer 80 is worth both a cash-out without purchase of any commodity and a trade-in with purchase of one or multiple commodities. The Web server 52 accordingly creates a quotation window including cash-out and trade-in description, the minimum cash-out quote PAmin, the maximum cash-out quote PAmax, the minimum trade-in quote PBmin, the maximum trade-in quote PBmax, a Cash-out Request button, a Trade-in Request button, and a Cancel button (step S930). The program then exits from this quotation window creation routine. One example of the quotation window created in this case is shown in Fig. 21. The cash-out and trade-in description shows that the cash-out quote represents a quote without purchase of any commodity, that the trade-in quote represents a quote with purchase of one or multiple commodities, that any malfunctioning

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used article is not the subject of cash-out or trade-in, that the final cash-out price and the final trade-in price will be determined in the respective ranges of minimum values and maximum values after the system makes an assessment of the used article,

5   and that the proprietary right to the used article is automatically transferred to the system at the time when the used article is delivered to the system (see 'Notandum' in the quotation window of Fig. 21).

When the maximum cash-out quote PAmax is not greater than

10   the threshold value P1 at step S920, on the other hand, it is determined that the user computer 80 is not worth a cash-out without purchase of any commodity but is worth a trade-in with purchase of one or multiple commodities. The maximum trade-in quote PBmax is then compared with a threshold value P2 (step S940).

15   The threshold value P2 is set to a specified value of criterion for determining that the user computer 80 is not worth being set to have a certain range of the trade-in quote by the used article quotation system 50, when the maximum trade-in quote PBmax is not greater than the threshold value P2. When the maximum

20   trade-in quote PBmax exceeds the threshold value P2 at step S940, it is determined that the user computer 80 is worth being set to have a certain range of the trade-in quote with purchase of one or multiple commodities. The Web server 52 accordingly

creates a quotation window including trade-in description, the minimum trade-in quote PBmin, the maximum trade-in quote PBmax, the Trade-in Request button, and the Cancel button (step S950). The program then exits from this quotation window creation

5   routine. One example of the quotation window created in this case is shown in Fig. 22. The trade-in description shows that the current used article is poorly evaluated and is not the subject of cash-out without purchase of any commodity but is only the subject of trade-in with purchase of one or multiple commodities,

10   that any malfunctioning used article is not the subject of trade-in, that the final trade-in price will be determined in the range of a minimum value and a maximum value after the system makes an assessment of the used article, and that the proprietary right to the used article is automatically transferred to the

15   system at the time when the used article is delivered to the system (see 'Notandum' in the quotation window of Fig. 22).

When the maximum trade-in quote PBmax is not greater than the threshold value P2 at step S940, on the other hand, it is determined that the user computer 80 is not worth being set to

20   have a certain range of the trade-in quote by the used article quotation system 50. The Web server 52 accordingly sets a fixed price P2 (this is identical with the threshold value P2 at step S940) to the trade-in quote and creates a quotation window

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including trade-in description, the fixed trade-in quote P2, the

Trade-in Request button, and the Cancel button (step S960). The

program then exits from this quotation window creation routine.

One example of the quotation window created in this case is shown

5   in Fig. 23. The trade-in description shows that the current used

article is poorly evaluated and is not the subject of cash-out

without purchase of any commodity but is only the subject of

trade-in with purchase of one or multiple commodities, that any

malfunctioning used article is not the subject of trade-in, and

10   that the proprietary right to the used article is automatically

transferred to the system at the time when the used article is

delivered to the system (see 'Notandum' in the quotation window

of Fig. 23). In this case, the used article is not assessed but

is taken as a trade-in with the fixed trade-in quote P2. After

15   conclusion of the quotation window creation routine, the program

goes back to the process chart of Fig. 17. The Web server 52

sends the quotation window thus created to the user computer 80

(step S770). The user computer 80 opens the received quotation

window on the display 82.

20   For example, the quotation window shown in Fig. 21 is opened

on the display 82 of the user computer 80. The user compares

the cash-out quote with the trade-in quote on the quotation window

and especially makes comparison between the minimum cash-out and

trade-in quotes and between the maximum cash-out and trade-in

quotes. The user clicks the 'Cash-out Request' button to

effectuate a cash-out, the 'Trade-in Request' button to

effectuate a trade-in, or the 'Cancel' button to throw up both

5   a cash-out and a trade-in. The user computer 80 respectively

sends a cash-out request signal, a trade-in request signal, or

a cancellation request signal to the Web server 52 via the Internet

20 in response to the click of the 'Cash-out Request' button,

the 'Trade-in Request' button, or the 'Cancel' button (step S780).

10   The Web server 52 receives one of the cash-out request signal,

the trade-in request signal, and the cancellation request signal,

analyzes the received request signal, and sends a window

corresponding to the analyzed request signal to the user computer

80 (step S790). When the received signal represents the cash-out

15   request, the Web server 52 sends a cash-out requirement

information input window (not shown) to receive the user's entry

of cash-out requirement information for cash-out of the user

computer 80, to the user computer 80. When the received signal

represents the trade-in request, the Web server 52 connects the

20   user computer 80 to a shopping site (not shown) where the user

can purchase one or multiple commodities. When the received

signal represents the cancellation request, the Web server 52

sends the top page window (not shown) of the used article quotation

site to the user computer 80.

In another example, the quotation window shown in Fig. 22 or shown in Fig. 23 is opened on the display 82 of the user computer 80. The user reads the notandum to acknowledge that the currently

5   used user computer 80 is poorly evaluated and is not the subject of cash-out but is only the subject of trade-in, and clicks the 'Trade-in Request' button to effectuate a trade-in or the 'Cancel' button to throw up a trade-in. The user computer 80 respectively sends the trade-in request signal or the

10 cancellation request signal to the Web server 52 via the Internet 20 in response to the click of the 'Trade-in Request' button or the 'Cancel' button (step S780). The Web server 52 receives either the trade-in request signal or the cancellation request signal, analyzes the received request signal, and sends a window

15 corresponding to the analyzed request signal to the user computer 80 (step S790). When the received signal represents the trade-in request, the Web server 52 connects the user computer 80 to the shopping site where the user can purchase one or multiple commodities. When the received signal represents the

20 cancellation request, the Web server 52 sends the top page window of the used article quotation site to the user computer 80.

The respective constituents of this embodiment are mapped to the elements of the present invention. The Web server 52 and

the database server 54 of the embodiment correspond to the quote

determination module of the invention. The Web server 52

corresponds to the quotation requirement information acquisition

module and the quotation information transmission module, and

5   the database server 54 corresponds to the component price storage

module.

As described above, in response to receipt of a request

for quotation of the user computer 80 itself, which has been sent

from the user computer 80, the used article quotation system 50

10   of the second embodiment causes the user computer 80 to

automatically read the quotation requirement information with

regard to the user computer 80, acquires the quotation

requirement information from the user computer 80, determines

a quote of the user computer 80 based on the acquired quotation

15   requirement information, and sends a quotation window including

the quote to the user computer 80. Namely the used article

quotation system 50 of the second embodiment determines the quote

of the user computer 80, based on the quotation requirement

information automatically read by the user computer 80. This

20   arrangement enables even the user with little knowledge of the

quotation requirement information, that is, the user with little

computer-related knowledge, to be readily informed of the quote

of the user computer 80.

The used article quotation system 50 of the second embodiment acquires the information regarding the respective components of the user computer 80 as the quotation requirement information, and determines the quote of the user computer 80

5   based on the acquired quotation requirement information. While the whole set of the user computer 80 is not worth of acceptance, some of the components may be worth of acceptance. In such cases, the user can advantageously gain some level of the quote. The quote of the user computer 80 is determined according to the total

10   value of the respective components. This ensures adequate quotation of the user computer 80.

The user computer 80 executes the quotation requirement information acquisition program transmitted from the used article quotation system 50 to generate the quotation requirement

15   information. This arrangement desirably relieves the user's load of manipulating the user computer 80. The user computer 80 utilizes the registry for recording the information on the respective components of the user computer 80 to generate the quotation requirement information. The user computer 80 can thus

20   readily read the information on the respective components of the user computer 80.

Both the trade-in quote and the cash-out quote are given to the user as the quotes of the user computer 80. This

arrangement allows for a comparison between the trade-in quote and the cash-out quote and gives the user an indication for selecting either a trade-in or a cash-out of the user computer 80.

5   The second embodiment discussed above is only illustrative and not restrictive in any sense.   There may be many modifications, changes, and alterations of the second embodiment.

In the structure of the second embodiment, the user computer 80 utilizes the registry for recording the information

10   on the respective components of the user computer 80 to generate the quotation requirement information.   The user computer 80 may alternatively utilize a BIOS for recording the information on the respective components of the user computer 80 to generate the quotation requirement information.   The user computer 80 may

15   otherwise read component information directly from the respective hardware components to generate the quotation requirement information.

The procedure of the second embodiment reads the values of the respective components of the user computer 80 from the

20   component price table and computes the total of the values of the components as the maximum cash-out quote PAmax.   One possible modification may compute the total value of the components as the minimum cash-out quote PAmin and determine the other quotes

PAmax, PBmax, and PBmin, based on the minimum cash-out quote PAmin.

Another possible modification may compute the total value of the

components as the maximum trade-in quote PBmax and determine the

other quotes PAmax, PAmin, and PBmin, based on the maximum

5   trade-in quote PBmax.   Still another possible modification may

compute the total value of the components as the minimum trade-in

quote PBmin and determine the other quotes PAmax, PAmin, and PBmax,

based on the minimum trade-in quote PBmin.   In order to make the

value range between the minimum trade-in quote PBmin and the

10   maximum trade-in quote PBmax higher than the value range between

the minimum cash-out quote PAmin and the maximum cash-out quote

PAmax, one modified technique may add or subtract an offset value

(> 0) to or from the total value of the components, multiply the

total value of the components by a coefficient of greater than

15   1 or by a coefficient of smaller than 1, or use any suitable

arithmetic expressions.

The procedure of the above embodiment sets the minimum

cash-out quote PAmin, the maximum cash-out quote PAmax, the

minimum trade-in quote PBmin, and the maximum trade-in quote

20   PBmax.   One possible modification may set fixed prices to the

cash-out quote and the trade-in quote without any value range.

The procedure of the above embodiment computes the maximum

cash-out quote PAmax by referring to the component price table

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and determines the maximum trade-in quote PBmax, based on the maximum cash-out quote PAmax. One modification may prepare a component price table including both a maximum cash-out price and a maximum trade-in price corresponding to each component and

5　compute both the maximum cash-out quote PAmax and the maximum trade-in quote PBmax according to the component price table. Another modification may prepare a component price table including a minimum cash-out price and a minimum trade-in price corresponding to each component and compute both the minimum

10　cash-out quote PAmin and the minimum trade-in quote PBmin according to the component price table.

In the structure of the embodiment discussed above, the used article quotation system 50 includes two servers, the Web server 52 and the database server 54. The used article quotation

15　system may have only one server, where the Web server 52 has the functions of both the database server 54 and the Web server 52. The used article quotation system may otherwise include three or more servers.